

ABSTRACT OF THE DISCLOSURE

A rotary actuator has a stator having plural permanent magnets 1a and 1b; a rotor having a rotor core 3 which plural salient poles 3a and 3b are formed at, and one or more rotor coils 5 are wound around; an electro-magnetic torque generating portion A comprising the stator and the rotor which, by supplying an electric current to the rotor coils 5, generates an electro-magnetic torque which displaces a relative angle position of the rotor and the stator in approximate proportion to the magnitude of the electric current; and a coil spring 36 biased in approximate proportion to the magnitude of the relative angle displacement of the rotor and the stator, and thereby generating a torque in the direction opposite to the direction of the electro-magnetic torque. When the exciting current is supplied to the rotor coils 5, the electro-magnetic torque in approximate proportion to the magnitude of the electric current is generated between the rotor and the stator, which makes the coil springs 36 bias and the rotor or the stator rotate to and be held at the angular position where the generated electro-magnetic torque corresponds to the opposite torque generated by the coil spring 36.